



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/579,887

05/18/2006

Holger Stark

710.1047

5959

23280 7590 05/05/2010
Davidson, Davidson & Kappel, LLC
485 7th Avenue
14th Floor
New York, NY 10018

EXAMINER

WALTERS, RYAN J

ART UNIT

PAPER NUMBER

3726

MAIL DATE

DELIVERY MODE

05/05/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,887	Applicant(s) STARK ET AL.	
	Examiner RYAN J. WALTERS	Art Unit 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/18/2006, 3/19/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 29-34 have been renumbered 39-44.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Art Unit: 3726

3. The abstract of the disclosure is objected to because **the abstract should discuss the method of manufacturing steps of the claims and not just the apparatus**. Correction is required. See MPEP § 608.01(b).

4. The title of the invention is not descriptive. **A new title is required** that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: METHOD OF MANUFACTURING A LIGHTWEIGHT VALVE.

5. **The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter**. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).

Correction of the following is required:

Claims 40-41 recite that the valve stem is inductively hardened. However, the specification does not mention any type of hardening steps.

Claim 44 recites “an outer surface of the lightweight valve is provided with a protective layer by plating”. However, the specification does not mention any protective layer or any plating steps.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 27, 33, 35 and 38 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 3726

8. **Claim 27** recites the limitation "the stop" in line 1. There is insufficient antecedent basis for this limitation in the claim.
9. **Claim 27** recites the limitation "a surface extending at right angles or in a direction at right angles" in line 2. It is unclear how one surface can extend in multiple right angles.
10. **Claim 33** recites the limitation "fully circular" in lines 1-2. It is unclear what is meant by "fully" circular, the bearing surface seems to be cylindrical shaped in the drawings, it is not clear what "fully" is implying.
11. **Claim 35** recites the limitation "fully circular" in line 1. It is unclear what is meant by "fully" circular.
12. The term "essentially" in **claim 38** is a relative term which renders the claim indefinite. The term "essentially completely" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. **Claims 21-39 are rejected under 35 U.S.C. 102(b) as being unpatentable by Schwaiger (DE 3625590, machine translation relied on).**

Art Unit: 3726

15. Re **Claim 21**, discloses a method for manufacturing a lightweight valve with a valve stem,

a hollow valve cone and

a valve disk closing the valve cone,

the valve stem being provided with a hollow space at an end facing the valve disk,

the valve disk also having a force transmission element extending through the hollow valve cone into the stem hollow space (Fig. 2),

the method comprising:

producing a first one-piece component

forming the valve disk with the force transmission element by casting, forming and/or a powder metallurgy method;

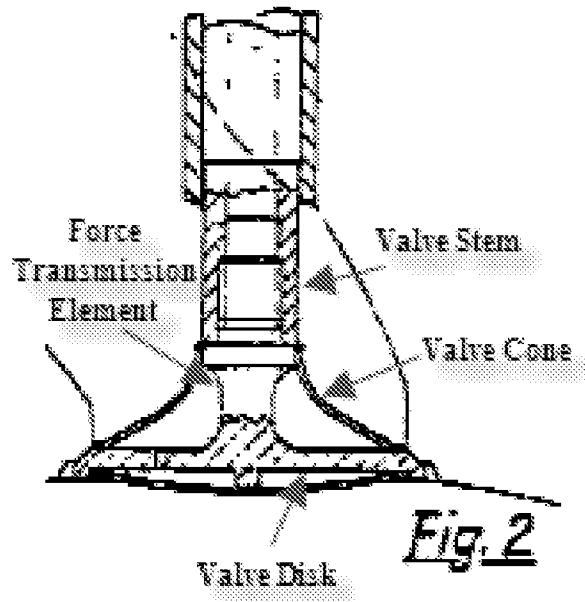
producing a second component

forming the valve stem and the valve cone; and

joining the first and second components together and connecting them by a material,

Art Unit: 3726

non-positive and/or positive connection (Fig. 2; page 2 of translation).



16. Re **Claim 22**, Schwaiger discloses the second component is a one-piece component (Fig. 2; page 2 of translation).
17. Re **Claim 23**, Schwaiger discloses the force transmission element projects in a dome-like manner above a flat side of the valve disk facing the valve cone (Fig. 2).
18. Re **Claim 24**, Schwaiger discloses the force transmission element is arranged centrally on the valve disk (Fig. 2).
19. Re **Claim 25**, Schwaiger discloses the stem hollow space is provided with an axial stop against which the force transmission element is applied with an end face (Fig. 2).
20. Re **Claim 26**, Schwaiger discloses the axial stop is a fully circular shoulder (Fig. 2).

Art Unit: 3726

21. Re **Claim 27**, as best understood, Schwaiger discloses the stop has a surface extending at right angles or in a direction at right angles to a longitudinal central axis of the valve stem (Fig. 2).

22. Re **Claim 28**, Schwaiger discloses the force transmission element has a constant cross section over an entire length (Fig. 6).

23. Re **Claim 29**, Schwaiger discloses a free end of the force transmission element is inclined (Fig. 2).

24. Re **Claim 30**, Schwaiger discloses the free end is tapered (Fig. 2).

25. Re **Claim 31**, Schwaiger discloses the force transmission element has a bearing surface extending in a direction of a longitudinal central axis of the force transmission element and bears flat against a correspondingly designed countersurface of the stem hollow space (Fig. 2).

26. Re **Claim 32**, Schwaiger discloses the bearing surface also bears against an inner wall of the hollow valve cone (Fig. 2).

27. Re **Claim 33**, as best understood, Schwaiger discloses the bearing surface is fully circular (Fig. 2).

28. Re **Claim 34**, Schwaiger discloses the countersurface is provided with at least one recess for forming a positive connection between force transmission element and valve stem (Fig. 2).

29. Re **Claim 35**, as best understood, Schwaiger discloses the recess is fully circular (Fig. 2).

Art Unit: 3726

30. Re **Claim 36**, Schwaiger discloses the force transmission element has an end face with a blind hole (Fig. 2).

31. Re **Claim 37**, Schwaiger discloses the valve cone is formed by a tulip-shaped widening of the end of the valve stem (Fig. 2).

32. Re **Claim 38**, as best understood, Schwaiger discloses a connection between the force transmission element and valve stem is designed so that forces acting on the valve disk during operation are introduced essentially completely via the force transmission element into the valve stem (Fig. 2, page 2 of translation).

33. Re **Claim 39**, Schwaiger discloses the valve disk has a supporting portion against which the valve cone bears flat in sections in an end region of greater diameter (Fig. 2).

Claim Rejections - 35 USC § 103

34. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35. **Claims 40-41 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwaiger (DE 3625590, machine translation relied on) in view of Sternberg (US 4,513,701).**

36. Re **Claims 40-41 and 44**, Schwaiger does not disclose the valve stem is subsequently inductively hardened in an end region facing away from the valve disk or that an outer surface of the lightweight valve is provided with a protective layer by

Art Unit: 3726

plating.

However, **Sternberg** teaches a valve stem 2 is subsequently inductively hardened in an end region facing away from the valve disk 1 and that an outer surface of the lightweight valve is provided with a protective layer by plating (Figs. 1-3; Col. 2, lines 16-25). It would be obvious to one of ordinary skill in the art to inductively harden the valve stem and provide a protective layer, as taught by Sternberg, for the purpose of creating a hardening depth in the material of the valve stem (Col. 2, lines 20-21), thereby increasing the strength of the stem.

37. **Claims 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwaiger (DE 3625590, machine translation relied on) in view of Sternberg (US 4,513,701).**

38. Re **Claims 42-43**, Schwaiger discloses the valve cone and the valve disk are attached together but does not disclose they are welded together by beam welding or fusion welding.

However, **Griffin** teaches valve components 12, 42 are welded together by beam welding or fusion welding (Fig. 1; Col. 7, lines 25-33). It would be obvious to one of ordinary skill in the art to have the valve cone and the valve disk welded together by beam welding or fusion welding, as taught by Griffin, for the purpose of securely attaching the valve components (Col. 7, line 32).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN J. WALTERS whose telephone number is

Art Unit: 3726

(571)270-5429. The examiner can normally be reached on Monday-Friday, 9am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. J. W./
Examiner, Art Unit 3726

/DAVID P. BRYANT/
Supervisory Patent Examiner, Art Unit 3726